**Scope # 3 Prediction of Weather**

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| **MS-ESS2.D.2** | **Standard** | **Weather and Climate: Because these patterns are so complex, weather can only be predicted probabilistically.** |

**Focus Question:** How does a meteorologist (weather forecaster) know when it will rain?

**What you will learn:** Students are expected to collect data to provide evidence how motions and complex interactions of air masses result in changes in weather conditions.

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| **ACTIVITY** | **PRE/POST DISCUSSION QUESTIONS** | **IMPORTANT FACTS** |
| **Illuminate** | Why is weather something that can only be predicted? | * *Temperature*
* *Humidity*
* *Wind direction and speed*
* *Location and type of air masses*
* *Location and type of fronts*
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| **Hook** | 1. What parts of the weather report were important for making predictions?
2. What information did you find on the provided weather map?
3. What did you predict for the weather for Memphis, Tennessee?
4. Do you think weather reports will ever be 100% accurate in the future? Why or why not?

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| **Activity 1****Weather Conditions for Omaha**Pre- discussion questions | 1. Meteorologists are scientists who study weather patterns and make forecasts about upcoming weather. What would a meteorologist analyze when predicting weather?
2. The meteorologist is predicting cooler weather tomorrow. What must be happening to support that prediction?
3. Why do meteorologists track weather over long periods of time?
4. Why are meteorologists predictions sometimes incorrect?
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| **ACTIVITY** | **PRE/POST DISCUSSION QUESTIONS** | **IMPORTANT FACTS** |
| **#1 Post-Activity Discussion** | 1. Why did the weather conditions change for Omaha?
2. What cause and effect relationship allowed you to predict the weather for Omaha?
3. What data was most important in making the prediction?
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| **Activity 2 :****Probability & Prediction**Pre-Activity Discussion | 1. What tools do meteorologists use to predict the weather?

2. The interactions of air pressure, winds, humidity, and temperature are very complex. How does a meteorologist blend all of these factors to make a prediction?3. If more than one model is used, would you expect all of the results to be the same? |  |
| #2 Post Activity Questions | 1. How would you determine the probability of the storm first striking land in Louisiana?
2. Why did Hurricane Jaoquin ‘s prediction to hit Rhode Island change?
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| **Activity 3****Storm Tracker**Pre-Activity Discussion | 1. What information does a meteorologist need to predict the weather?
2. Why is it important for the prediction to be as accurate as possible?
3. What different weather alerts can you think of?
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| Post-Activity Discussion | 1. Was your first prediction of where the hurricane would strike the coast of the United States correct? Why or why not?

2. Was your final prediction of where the hurricane would strike the coast of the United States correct? Why or why not? |  |